UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/611,633	07/07/2000	STEVEN J. GOLDBERG	PF01960NA	6822

20280 7590 10/03/2003

MOTOROLA INC
600 NORTH US HIGHWAY 45
LIBERTYVILLE, IL 60048-5343

EXAMINER	
YANG, CLARA I	

ART UNIT	PAPER NUMBER
2635	

DATE MAILED: 10/03/2003 9

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/611,633	GOLDBERG, STEVEN J.
	Examiner	**Art Unit**
	Clara Yang	2635

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on 05 September 2003.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-21 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-21 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, see pages 2 - 6, filed on 5 September 2003, with respect to the rejection(s)of claim(s) 1 - 21 under U.S.C. 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, new grounds of rejection are made in view of U.S. Patent No. 5,918,158 (LaPorta et al.) and U.S. Patent No. 5,973,613 (Reis et al.) as follows:

- Claim 1 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 5,530,437 (Goldberg) in view of U.S. Patent No. 5,918,158 (LaPorta et al.)
- Claims 1 - 4, 10 - 12, and 15 - 21 are rejected under U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,530,437 (Goldberg) in view of U.S. Patent No. 5,918,158 (LaPorta et al.).
- Claims 1 - 12 and 16 - 21 are rejected under U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,973,613 (Reis et al.) in view of U.S. Patent No. 5,530,437 (Goldberg).
- Claim 13 is rejected under U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,973,613 (Reis et al.) in view of U.S. Patent No. 5,530,437 (Goldberg) as applied to claim 11, and further in view of U.S. Patent No. 6,054,928 (Lemelson).

Double Patenting

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686

F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

3. Claim 1 rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 5,530,437 (Goldberg) in view of U.S. Patent No. 5,918,158 (LaPorta et al.). The first limitation of Claim 1 ("pre-programming each of a plurality of wireless communication units") is claimed in Col. 12, lines 61 - 67 and Col. 13, lines 1 - 6 of Goldberg. Though the patent lacks the term "orthogonal codes", the bit patterns are understood to be orthogonal because each bit pattern is maximally different such that all received simultaneously received bit patterns produce an interference bit/symbol pattern that "provides a non-zero probability of correctly identifying at least a portion of said group, and a substantially zero probability of erroneously identifying a portable communication unit not in said group." The fourth limitation of Claim 1 ("transmitting...one of the plurality of orthogonal codes") is claimed in Col. 13, lines 7 - 11. Because Goldberg teaches that the portable communication units of each subset or portion simultaneously transmit co-channel responses to a poll, it is implied that each subset is assigned a response time slot. Though Goldberg does not claim that the time slot is a randomly selected slotted ALHOA time

slot, the Examiner takes Official Notice that slotted ALOHA is a commonly used technique for communications resource assignment in radio based telecommunications and that random time slot selection reduces collisions. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to assign each subset a randomly selected slotted ALOHA time slot for transmitting a response to a polling signal since the Examiner takes Official Notice that it is desirable to avoid collisions in a multiple access system and that the slotted ALOHA is a suitable method for reducing collisions in a system with multiple, simultaneous users. Goldberg omits claiming that the bit patterns are canned messages as recited in the first limitation, the second limitation ("detecting...a triggering event"), and third limitation ("selecting...one of the plurality of canned messages").

In an analogous art, LaPorta teaches a transmission method, as shown in Figs. 3, 7, and 8, for a two-way wireless message system comprising the following steps in addition to the steps of two-way message devices 11 or pagers transmitting an acknowledgement upon receiving a message (see Col. 8, lines 62 - 67 and Col. 9, line 1): (a) pre-programming each of a plurality of two-way message devices 11 with a plurality of codes corresponding to pre-canned messages (see Col. 5, lines 12 - 13, 29 - 42, and 52 - 56; Col. 13, lines 1 - 13 and 64 - 67; and Col. 14, lines 1 - 10); (b) two-way message device 11 detecting a recipient's selection of function button 84 in response to the received message, i.e., a triggering event that does not originate from and is not controlled by the wireless communication system (see Fig. 9, function buttons 84; Col. 5, lines 53 - 56; Col. 8, lines 40 - 44; Col. 15, lines 28 -31); and (c) two-way message device 11 selecting and transmitting a reply code or canned message that corresponds to the recipient's selected response (see Col. 5, lines 21 - 25 and 37 - 38; and Col. 15, lines 28 - 31).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of Goldberg as taught by LaPorta because the steps of detecting a triggering event and transmitting canned messages regarding a triggering event to a central station enable a user to use a wireless communication unit, such as a pager, to respond to a received message while using limited bandwidth (see LaPorta, Col. 6, lines 56 - 59 and Col. 13, lines 5 - 8), thus enhancing the functionality of the wireless processing device.

4. Claims 2, 10, 16, and 19 - 21 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 8,9, 12 - 14 of U.S. Patent No. 5,530,437 (Goldberg). Although the conflicting claims are not identical, they are not patentably distinct from each other because of the following reasons:

- The limitations of Claim 2 are claimed in Claim 1 of Goldberg U.S. Patent No. 5,530,437 (hereinafter referred to as "Goldberg"). The first limitation ("receiving at least two different canned messages") is claimed in Col. 12, lines 66 - 67 and Col. 13, lines 1 - 2. The second limitation ("decoding at least some of the at least two different canned messages...") is claimed in Col. 13, lines 12 - 14).

- The limitations of Claim 10 are claimed in Claim 8 of Goldberg. The first limitation ("wireless processing device is coupled to a plurality of receivers") is claimed in Col. 14, lines 10 - 15. The second limitation ("wherein the transmission method further comprises...") is claimed in Col. 14, lines 42 - 46.

- The limitations of Claim 16 are claimed in Claims 8 and 12 of Goldberg. The first two limitations ("a transceiver" and "a processor coupled to the transceiver") are claimed in Col. 14, lines 8 - 15. The third and fourth limitations ("wherein the processor is further programmed to: cooperate...and decode...") are claimed in Col. 14, lines 25 - 29 and 42 - 46 and in Col. 15, lines 21 - 26).

- The limitations of Claim 19 are claimed in Claims 8, 9, 11, 12, and 14 of Goldberg. The first limitation ("receive and decode one of the plurality of canned messages") is claimed in Col. 14, lines 25 - 29 and 42 - 46 and Col. 15, lines 18 - 20 and 21 - 26. The second limitation ("transmit a broadcast message") is claimed in Col. 14, lines 57 - 64 and Col. 15, lines 35 - 43.

- The limitation of Claim 20 is claimed in Claim 14 of Goldberg in Col. 15, lines 35 - 43.

- The limitation of Claim 21 is claimed in Claim 9 of Goldberg in Col. 14, lines 49 - 50. In the specifications, Goldberg specifies that the input means (see Fig. 4, input interface 110) couple the processor to a Public Switched Telephone network for communicating with the network (see Col. 3, lines 58 - 60).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1 - 4, 10 - 12, and 15 - 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,530,437 (Goldberg) in view of U.S. Patent No. 5,918,158 (LaPorta et al.).

Referring to Claims 1 - 3 and 10, Goldberg's transmission method in a wireless communication system includes the steps of (a) pre-programming each of a plurality of wireless communication units with a first set of bits (or code) indicating a subset or group that each communication unit belongs to and a unique code for uniquely identifying the communication unit within each group (see Fig. 5, subset bits 508 and unique bit pattern 518; and Col. 8, lines 7 - 13). Goldberg specifies that the unique code for each personal communication unit (PCU) 108 is maximally different such that all received interference bit patterns or symbol patterns (see Figs. 6 and 7) can positively identify all responding PCUs, thus implying that the unique codes are orthogonal codes. Goldberg's method also comprises the steps of: (b) a subset or portion of the plurality of PCUs 108 (see Fig. 1) detecting a poll transmitted by central controller 102, i.e., a triggering event (see Fig. 1 and Col. 3, lines 50 - 54); (c) each PCU 108 of said polled subset

selecting its pre-programmed unique code to be transmitted in response to the triggering event (see Fig. 8, step 806 and 808); and (d) each PCU 108 of said polled subset transmitting its unique code during a time-slot designated by central controller 102 (see Col. 4, lines 43 - 45). Though Goldberg omits teaching that the time slot is a randomly selected slotted ALHOA time slot, the Examiner takes Official Notice that slotted ALOHA is a commonly used technique for communications resource assignment in radio based telecommunications. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to assign each subset a randomly selected slotted ALOHA time slot for transmitting a response to a polling signal since the Examiner takes Official Notice that it is desirable to avoid collisions in a multiple access system and that the slotted ALOHA is a suitable method for reducing collisions in a system with multiple, simultaneous users. Goldberg's method further comprises the steps of: (e) receiving at least two different unique identification codes sent simultaneously during a single time slot, thereby producing an interference symbol pattern (see Figs. 6 and 7; Col. 8, lines 46 - 51; and Col. 9, lines 19 - 28 and 38 - 45); (f) decoding at least some of the at least two different unique identification codes from the interference symbol pattern (see Fig. 6, and Col. 9, lines 29 - 37); (g) receiving at least two identical codes indicating a subset/group sent simultaneously during a single time slot, thereby producing a reinforced symbol pattern (see Col. 10, lines 30 - 34, and Col. 12, lines 18 - 19); (h) decoding, from the reinforced symbol pattern, one of the plurality of canned messages received (see Col. 10, lines 30 - 34, and Col. 12, lines 18 - 19); (i) coupling a central controller 102 or wireless processing device to a plurality of receivers 103 and 105, wherein central controller 102 examines the common codes and unique codes received by receivers 103 and 105 (see Col. 10, lines 27 - 63); and (j) central controller 102 extracting additional information, such as a probable location of each identified PCU 108, for

each canned message received. (See Col 10, lines 54 - 63.) Goldberg fails to teach (1) pre-programming each PCU with orthogonal codes that correspond to a plurality of canned messages, (2) each PCU detecting a triggering event that does not originate from and is not controlled by the wireless communication system; and (3) each PCU selecting and transmitting one of the plurality of canned messages in response to the triggering event.

In an analogous art, LaPorta teaches a transmission method, as shown in Figs. 3, 7, and 8, for a two-way wireless message system comprising the step of two-way message devices 11 or pagers transmitting an acknowledgement upon receiving a message (see Col. 8, lines 62 - 67 and Col. 9, line 1). LaPorta's method also includes the following steps: (a) pre-programming each of a plurality of two-way message devices 11 with a plurality of codes corresponding to canned messages (see Col. 5, lines 12 - 13, 29 - 42, and 52 - 56; Col. 13, lines 1 - 13 and 64 - 67; and Col. 14, lines 1 - 10); (b) two-way message device 11 detecting a recipient's selection of function button 84 in response to the received message, i.e., a triggering event that does not originate from and is not controlled by the wireless communication system (see Fig. 9, function buttons 84; Col. 5, lines 53 - 56; Col. 8, lines 40 - 44; Col. 15, lines 28 -31); and (c) two-way message device 11 selecting and transmitting a reply code or canned message that corresponds to the recipient's selected response (see Col. 5, lines 21 - 25 and 37 - 38; and Col. 15, lines 28 - 31).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of Goldberg as taught by LaPorta because the steps of (1) pre-programming each PCU with orthogonal codes that correspond to a plurality of canned messages in addition to each PCU's unique code steps, (2) detecting a triggering event that does not originate from and is not controlled by the wireless communication system, and

(3) selecting and transmitting one of the plurality of canned messages in response to the triggering event provide an easy way for a recipient to respond to a message with limited bandwidth usage (see LaPorta, Col. 6, lines 56 - 59 and Col. 13, lines 5 - 8) while allowing co-channel responses of multiple recipients to be received simultaneously at central controller 102 (see Goldberg, Abstract), thus conserving frequency spectrum.

Regarding Claim 4, Goldberg teaches that each PCU 108 within a subset transmits a common code indicating the subset it belongs to in addition to its unique identification code, which is understood to be an orthogonal code as mentioned in Claim 1 (see Col. 10, lines 27 - 34).

Referring to Claims 11 and 15, Goldberg's PCU 108 or wireless communication unit, as shown in Fig. 2, comprises: (a) transceiver 204; (b) processor 212 coupled to transceiver 204 for processing the communications; (c) read-only memory (ROM) 232 coupled to the processor for storing software for programming the processor (see Col. 5, lines 56 - 60); (d) real-time clock 226 coupled to the processor for providing a time signal (see Col. 5, lines 38 - 39); and (e) user controls 230 or control interface coupled to the processor for controlling the wireless communication unit (see Col. 5, lines 62 - 65). PCU 108 also has (f) random access memory (RAM) 214 for storing operating variables (see Col. 5, lines 40 - 49). In addition, the response bit pattern 218 that is stored in RAM 214 comprises two sets of codes. The first set is a common code indicating which subset/group that each PCU 108 belongs to; the second set is a unique code identifying each PCU 108 within the group (see Col. 8, lines 27 - 32). As explained above in Claim 1, the common code and unique codes are both orthogonal. Goldberg teaches that when a plurality of the orthogonal codes are received simultaneously, the resulting interference symbol pattern provides a non-zero probability of correctly identifying at least a portion of the

group of PCUs and a substantially zero probability of erroneously identifying a PCU not in the group (see Col. 2, lines 1 - 5). Processor 212 is programmed to: (g) select its unique code as a selected message to be transmitted in response to receiving a polling signal from central controller 102 (see Col. 8, lines 40 - 45 and Col. 10, lines 27 - 30), which is understood to be a triggering event; and (h) cooperate with the transceiver to transmit the orthogonal code corresponding to the selected message (i.e., its unique code) during a time slot selected by central controller 102 (see Col. 4, lines 43 - 45 and 54 - 57). As explained above in Claim 1, it is understood that central controller 102 assigns each subset a randomly selected slotted ALOHA time slot. Because Goldberg teaches that central controller 102 is able to send a broadcast message to specific PCUs 108 (see Col. 4, lines 27 - 57), thus prompting only the selected PCUs 108 to generate and send a unique identification code, it is understood that the processor of Goldberg's PCU 108 is also programmed to (i) cooperate with transceiver 204 (see Fig. 2) to receive from central controller 102 a message for selectively controlling PCU 108 as to whether PCU 108 is allowed to generate a unique identification code. Goldberg's orthogonal codes, however, correspond to a plurality of unique identification codes instead of canned messages. In addition, processor 212 of PCU 108 fails to cooperate with the control interface to detect a triggering event that does not originate from and is not controlled by the wireless communication system.

Referring to Fig. 9, LaPorta depicts a two-way pager 11 that generates and receives messages (see Col. 8, lines 31 - 33), thus implying that pager 11 has (a) a transceiver in order to receive and transmit messages. Per LaPorta, pager 11 also comprises: (b) a processor (see Col. 8, lines 46 - 48); (c) memory that is pre-programmed with a plurality of canned messages and their associated data or codes (see Col. 8, lines 46 - 48 and 50 - 51); and (d) function buttons 84

and buttons 86 or control interface (see Col. 8, lines 40 - 44). The processor is able to: (e) detect via user interface code which function button 84 is actuated by a user, i.e., a "trigger event" (see Col. 8, lines 46 - 48); and (f) select one of the plurality of canned messages as a selected message to be transmitted in response to the function button actuated by a user (see Col. 5, lines 53 - 56; Col. 13, lines 33 - 37; and Col. 15, lines 28 - 31).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of Goldberg as taught by LaPorta because a PCU having (1) a memory that is pre-programmed with orthogonal codes corresponding to a plurality of canned messages and (2) a processor 212 that cooperates with the control interface to detect a triggering event provides an easy way for a recipient to respond to a message with limited bandwidth usage (see LaPorta, Col. 6, lines 56 - 59 and Col. 13, lines 5 - 8) while allowing co-channel responses of multiple recipients to be received simultaneously at central controller 102 (see Goldberg, Abstract), thus conserving frequency spectrum.

Regarding Claim 12, Goldberg imparts that in addition to transmitting its unique code, it is preferable that PCU 108 sends its common code, which is decoded by central controller 102 (see Col. 10, lines 30 - 34). Here it is understood that the common code is additional data.

Referring to Claims 16, 17, 19, and 20, Goldberg's central controller 102 or wireless processing device comprises: (a) transceivers formed by receivers 103, 105 and transmitter 104 for receiving a plurality of common and/or unique codes (see Fig. 1; Col. 4, lines 65 - 67; and Col. 5, lines 1 - 4); and (b) a processor 404 coupled to the transceivers via encoder/transmitter controller 414, communication interface 402, and radio links (see Fig. 4 and Col. 4, lines 1 - 12). Goldberg imparts that each PCU 108 stores two sets of codes. The first set is a common code indicating which subset/group that each PCU 108 belongs to; the second set is a unique code

identifying each PCU 108 within the group (see Col. 8, lines 27 - 32). It is understood that the common and unique codes are orthogonal codes as explained above in Claim 1. Due to the usage of orthogonal codes, the interference symbol pattern resulting when a plurality of canned messages are received simultaneously by central controller 102 provides a non-zero probability of correctly identifying at least a portion of the group of PCUs and a substantially zero probability of erroneously identifying a PCU not in the group (see Col. 2, lines 1 - 5). Processor 404 of central controller 102 is programmed to: (c) cooperate with the transceivers to receive at least two different canned messages sent during a signal time slot (see Col. 6, lines 44 - 48; Col. 7, lines 8 - 11 and 56 - 61; and Col. 8, lines 46 - 58); (d) decode at least some of the at least two different canned messages from the interference symbol pattern shown in Fig. 7 (see Col. 10, lines 51 - 54); (e) cooperate with the transceivers to receive at least two identical canned messages (i.e., common codes) during a single time slot, thereby producing a reinforced symbol pattern (see Col. 6, lines 44 - 48; Col. 8, lines 46 - 51; and Col. 10, lines 30 - 34); (f) decode from the reinforced symbol pattern one of the plurality of canned messages received (see Figs. 6 and 7 and Col. 10, lines 30 - 34); (g) receive and decode one of the canned messages as described in Claim 16; and (h) cooperate further with the transceivers to transmit a broadcast message directing a plurality of PCUs 108 that transmitted a unique code but remain unidentified to retransmit their responses (see Col. 10, lines 64 - 67). Because central controller 102 is able to send messages using selective call addresses (see Col. 4, lines 34 - 37) and to request only unidentified PCUs 108 to retransmit their responses, it is understood that processor 404 is programmed to direct any of the PCUs to behave in a specified manner. Furthermore, because Goldberg's processor 404 is able to poll specific PCUs 108, which are then triggered to send their unique codes, it is understood that processor 404 is programmed to (i) selectively control

which PCU 108 is allowed to generate a canned message (see Col. 4, lines 25 - 57). Goldberg, however, is silent on processor 404 being programmed to processing canned messages that are represented by orthogonal codes.

As shown in Fig. 3, LaPorta's two-way message network 14 is able to receive a plurality of canned messages transmitted by two-way messaging devices 58, 60, and 62 via communications channels 64a, 64b, and 64c (see Col. 5, lines 21 - 28). Referring to Figs. 4 and 5, network 14 comprises batch servers 100, each being connected to one or more base stations 76. Per LaPorta, batch server 100 receives and acknowledges message from pager 11, receives messages destined to a messaging device, forwards them to the proper based station 76 for delivery, and receives acknowledgements that the messages have been correctly received (see Col. 8, lines 62 - 67 and Col. 9, lines 1 - 9). Because a batch server 100 provides intelligence to base stations 76, it is understood that batch server 100 comprises a processor that is programmed to cooperate with base stations 76 or transceivers for processing the plurality of canned messages.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of Goldberg as taught by LaPorta because processor 404 being programmed to processing canned messages that are represented by orthogonal codes provides an easy way for a recipient to respond to a message with limited bandwidth usage (see LaPorta, Col. 6, lines 56 - 59 and Col. 13, lines 5 - 8) while allowing co-channel responses of multiple recipients to be received simultaneously at central controller 102 (see Goldberg, Abstract), thus conserving frequency spectrum and enhancing PCU 108's functionality.

Regarding Claim 18, Goldberg imparts that in addition to transmitting its unique code, which is an orthogonal code as explained above in Claim 1, it is preferable that PCU 108 also sends its common code or additional data, which is decoded by central controller 102 (see Col. 10, lines 30 - 34).

Regarding Claim 21, as shown in Figs. 1 and 4, Goldberg's central controller 102 is coupled to a Public Switched Telephone network via telephone input 110 (see Col. 3, lines 58 - 60) for communicating with the network.

7. Claims 1 - 10, 12, and 14 - 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,973,613 (Reis et al.) in view of U.S. Patent No. 5,530,437 (Goldberg).

Referring to Claims 1 and 4, Reis teaches a personal messaging method comprising the steps of: (a) pre-programming a plurality of two-way pagers 102 or wireless communication units with codes corresponding to a plurality of canned messages (see Col. 4, lines 30 - 34 and Col. 7, lines 45 - 59); (b) pager 102's microcomputer 112 detecting a user's usage of keyboard 118 to select a canned message, i.e., a "trigger event" (see Col. 8, lines 13 - 15); (c) microcomputer 112 selecting one of the canned messages based on the user's actuation of keyboard 118 (see Col. 8, lines 13 - 15 and 27 - 30); and (d) pager 102's transmitter 110 transmitting the data corresponding to the selected canned message to a local cellular transceiver (see Col. 8, lines 27 - 30). Per Reis, pager 102 delays transmission of a reply signal a random time period after receipt of a timing mark in order to avoid collisions and enable a large number of pagers to operate simultaneously within the same communication cell 206 (see Col. 9, lines 31 - 35 and 39 - 41). Reis also teaches that a local cellular transceiver is able to transmit an acknowledgement signal back to pager 102 indicating receipt of pager 102's canned reply message (see Col. 9, lines 50 - 53), thus implying the step of (e) pager 102 transmitting its

identification or additional data along with the code representing the canned message. Though Reis fails to expressly teach that the randomly selected time period is a slotted-ALOHA time slot, the Examiner takes Official Notice that the slotted ALOHA protocol is a well known random access channel contention technique that is commonly used for organizing inbound channel information (i.e., responses to received message from pagers) in two-way paging systems. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made such that each pager 102 transmits its reply on a randomly selected slotted ALOHA time slot in response to a trigger event since the Examiner takes Official Notice that the slotted ALOHA protocol is well known and commonly used in two-way paging systems for collision avoidance. Reis also fails to expressly teach that the codes corresponding to a plurality of canned messages are orthogonal and are chosen such that when a group of different canned messages are received simultaneously by a local cellular transceiver or wireless processing device, the interference symbol patter provides a non-zero probability of correctly decoding at least some of the canned messages and a substantially zero probability of erroneously decoding a canned message not in the group.

In an analogous art, Goldberg's transmission method in a wireless communication system includes the step of (a) pre-programming each of a plurality of wireless communication units with a first set of bits (or code) indicating a subset or group that each communication unit belongs to and a unique code for uniquely identifying the communication unit within each group (see Fig. 5, subset bits 508 and unique bit pattern 518; and Col. 8, lines 7 - 13); (b) a subset or portion of the plurality of PCUs 108 (see Fig. 1) detecting a poll transmitted by central controller 102, i.e., a " triggering event" (see Fig. 1 and Col. 3, lines 50 - 54); (c) each PCU 108 of said polled subset selecting its pre-programmed unique code to be transmitted in response to

the triggering event (see Fig. 8, step 806 and 808); and (d) each PCU 108 of said polled subset transmitting its unique code during a time-slot designated by central controller 102 (see Col. 4, lines 43 - 45). Because Goldberg specifies that the unique codes for PCUs 108 or wireless communication units are maximally different such that all received interference bit patterns or symbol patterns (see Figs. 6 and 7) can positively identify all responding PCUs, it is understood that the unique codes are orthogonal codes. Consequently, the interference symbol pattern provides a non-zero probability of correctly identifying at least a portion of the group of PCUs and a substantially zero probability of erroneously identifying a PCU not in the group (see Col. 2, lines 1 – 5).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of Reis as taught by Goldberg because the use of the slotted ALOHA protocol and orthogonal codes enable a plurality of pagers to simultaneously transmit canned reply messages on the same communications channel while enabling a local cellular transceiver to correctly identify the interfering messages, thus improving the system's functionality and efficiency.

Regarding Claims 2 and 3, Reis is silent on the steps of (a) receiving at least two different canned messages sent simultaneously during a single time slot, thereby producing an interference symbol pattern; and (b) decoding at least some of the different canned messages from the interference symbol pattern. Reis's method also lacks the steps of: (c) receiving at least two identical canned messages sent simultaneously during a single time slot, thereby producing a reinforced symbol pattern; and (d) decoding at least some of the identical canned messages from the reinforced symbol pattern.

The method as taught by Goldberg further comprises the steps of: (a) receiving at least two different unique identification codes sent simultaneously during a single time slot, thereby producing an interference symbol pattern (see Figs. 6 and 7; Col. 8, lines 46 - 51; and Col. 9, lines 19 - 28 and 38 - 45); (b) decoding at least some of the at least two different unique identification codes from the interference symbol pattern (see Fig. 6, and Col. 9, lines 29 - 37); (c) receiving at least two identical codes indicating a subset/group sent simultaneously during a single time slot, thereby producing a reinforced symbol pattern (see Col. 10, lines 30 - 34, and Col. 12, lines 18 - 19); and (d) decoding, from the reinforced symbol pattern, one of the plurality of canned messages received (see Col. 10, lines 30 - 34, and Col. 12, lines 18 - 19).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of Reis as taught by Goldberg because using orthogonal codes to represent canned messages enable a plurality of pagers to simultaneously transmit canned reply messages on the same communications channel while enabling a local cellular transceiver to correctly identify the interfering messages and reinforce the identification of a canned message, thus improving the system's reliability and efficiency.

Regarding Claims 5 - 9, Reis discloses that pager 102 can be used for asset tracking or data collection (see Col. 5, lines 20 - 26 and Col. 8, lines 51 - 56). Such system is shown in Fig. 3 and is formed by a plurality of pagers 8 and an interrogator 7. As shown in Fig. 5, pager 8's processor 2 is connected to input/output (I/O) units 18, which include temperature sensors or alarms (see Col. 14, lines 61 - 65 and Col. 37, lines 34 - 40). When I/O units 18 are alarms, Reis imparts that the system embodies a polled remote alarm system. Because an interrupt signal is generated to wake up pager 8 when an alarm is activated (see Col. 37, lines 31 - 40), it is understood that pager 8 transmits a canned message regarding the activated alarm. In addition,

Reis imparts a collision avoidance technique such that a large number of pagers can operate simultaneously within the same communications cell (see Col. 9, lines 31 - 49), thus implying the step of (a) a local cell transceiver or interrogator 7 determining that one of a plurality of canned messages has been transmitted by at least one of the plurality of pagers. Referring again to Fig. 3, Reis's interrogator 7 is able to send multiple one-to-many or broadcast commands, such as the INTERRUPT_HELLO command (see Table 1 and Col. 37, lines 25 - 29). Reis 's method further includes (b) interrogator 7 sending the INTERRUPT_HELLO command, which instructs pagers 8 that are already awake to transmit their identities. As mentioned previously, pagers 8 awaken in response to a stimulus from an alarm of other signals from one of the attached I/O units 18 and transmit a canned message that corresponds to the alarm. When pagers 8 respond to the command, it is understood that their responses are transmitted during a predetermined set of slotted ALOHA time slots as explained above in Claim 1. Reis's method also comprises the steps of: (c) sending an "ALL_SLEEP" command to all active pagers 8, causing pagers 8 to enter a sleep state and preventing the pagers from transmitting any data until interrogator 7 transmits a wake-up signal and a command signal requesting data (see Table 1; Col. 14, lines 16 - 21; and Col. 17, lines 11 - 16); (d) producing a first generation of a canned message in response to a triggering event (see Col. 8, lines 13 - 15 and 27 - 30); (e) preventing a second generating of the canned message for a predetermined time period after the first generation while waiting for a local cellular transceiver's or interrogator 7's acknowledgement signal (see Col. 6, lines 34 - 39; Col. 9, lines 50 - 58; and Col. 16, lines 3 - 5 and 13 - 16); and (f) interrogator 7 sending "directed commands", such as SLEEP and SQUAWK, to an addressed pager for execution (see Table 1 and Col. 17, lines 21 - 25), thereby allowing interrogator 7 to selectively control specific pagers 8. Because Reis teaches storing

canned messages in a pager as explained above in Claim 1, it is understood that the SQUAWK command, which directs a specific pager to transfer data from a specific portion of the pager memory to interrogator 7 (see Col. 17, lines 21 - 25), selects a specific pager 8 to generate a canned message.

Regarding Claim 10, Reis teaches a cellular communications environment 230 that comprises a plurality of local cellular transceivers coupled to computer 202. Per Reis, computer 202 receives and interprets the reply signal received by a cellular transceiver from pager 102 and takes appropriate action (see Col. 9, lines 59 - 62). Reis imparts that pager 102 employs techniques for collision avoidance in order to allow a large number of pagers to operate simultaneously within the same communications cell (see Col. 9, lines 31 - 35), thus implying that computer 202 is able to receive and interpret a plurality reply signals. In addition to extracting the canned message (see Col. 9, lines 62 - 67 and Col. 10, line 1), Reis imparts that computer 202 is able to determine the location of a user carrying pager 102 or if the user has authorization to enter a restricted zone (see Col. 10, lines 16 - 44), thus implying that computer 202 is able to extract additional information about the received canned messages.

Referring to Claims 11, 12, 16, and 17, Reis's personal message system comprises pagers 102 or wireless communication units and a cellular communications system 230 or wireless processing device. Reis's pager 102, as shown in Fig. 1, comprises: (a) receiver 106 and transmitter 110 that form a transceiver; (b) microcomputer 112 or processor coupled to receiver 106 and transmitter 110; (c) memory 114 for storing codes that correspond to canned messages (see Col. 7, lines 45 - 59); (d) a clock for enabling pager 102 to delay transmission of a reply signal for a random time period after receipt of a timing mark (see Col. 9, lines 39 - 41); and (e) keyboard 118 or control interface (see Col. 8, lines 13 - 15). Though Reis omits teaching a

memory coupled to microcomputer 112 for storing operating variables and software, Reis teaches that microcomputer 112 is programmed in a conventional manner and is able to interpret signals received by receiver 106, to cause paging messages to be displayed, and to show the user the available canned messages on display 116 (see Col. 7, lines 41 - 43 and 59 - 60); therefore, it is inherent that microcomputer 112 is connected to an instruction code memory. According to Reis, microcomputer 112 is programmed to: (f) cooperate with keyboard 118 to detect a user selecting a canned message, i.e., a "triggering event" (see Col. 8, lines 13 - 26); (g) select one of the plurality of canned messages (see Col. 8, lines 27 - 30); and (h) cooperate with transmitter 110 to transmit the code that corresponds to the selected canned message after the lapse of a random time period (see Col. 8, lines 27 - 30 and Col. 9, lines 39 - 41). Reis also teaches that a local cellular transceiver is able to transmit an acknowledgement signal back to pager 102 indicating receipt of pager 102's canned reply message (see Col. 9, lines 50 - 53), thus implying the step of (i) pager 102 transmitting its identification or additional data along with the code representing the canned message. Referring to Fig. 2, Reis's cellular communications system 230 comprises (a) at least one local cellular transceiver 214, 216, 218, and 220 for receiving canned messages and (b) computer 202 or processor coupled to each transceiver for processing the plurality of canned messages (see Col. 9, lines 60 - 62). Computer 202, as taught by Reis, is programmed to (c) cooperate with local cellular transceivers to receive at least two different canned messages (see Col. 9, lines 31 - 35 and 43 - 46). Though Reis fails to expressly teach that the randomly selected time period is a slotted-ALOHA time slot, the Examiner takes Official Notice that the slotted ALOHA protocol is a well known random access channel contention technique that is commonly used for organizing inbound channel information (i.e., responses to received message from pagers) in two-way paging systems. Therefore,

it would have been obvious to one of ordinary skill in the art at the time the invention was made such that each pager 102 transmits its reply on a randomly selected slotted ALOHA time slot in response to a trigger event since the Examiner takes Official Notice that the slotted ALOHA protocol is well known and commonly used in two-way paging systems for collision avoidance. Reis also fails to expressly teach that: (1) the codes corresponding to a plurality of canned messages are orthogonal and are chosen such that when a group of different canned messages are received simultaneously by a local cellular transceiver or wireless processing device, the interference symbol patter provides a non-zero probability of correctly decoding at least some of the canned messages and a substantially zero probability of erroneously decoding a canned message not in the group; (2) when at least two different canned messages are received during a single time slot, an interference symbol pattern is produced; (3) computer 202 is programmed to decode at least two different canned messages from an interference symbol pattern; (4) when at least two identical canned messages are received during a single time slot, a reinforced symbol pattern is produced; and (5) computer 202 is programmed to decode one of the canned messages from a reinforced symbol pattern.

Goldberg's wireless communication system comprises of PCUs 108 and central controller 110. As shown in Fig. 2, Goldberg's PCU 108 has: (a) transceiver 204; (b) a processor 212 coupled to transceiver 204 for processing the communications; (c) a read-only memory (ROM) 232 coupled to the processor for storing software for programming the processor (see Col. 5, lines 56 - 60); (d) a real-time clock 226 coupled to the processor for providing a time signal (see Col. 5, lines 38 - 39); and (e) user controls 230 or control interface coupled to the processor for controlling the wireless communication unit (see Col. 5, lines 62 - 65). PCU 108 also has (f) a random access memory (RAM) 214 for storing operating variables and response bit

pattern 218 (see Col. 5, lines 40 - 49). Processor 212 is programmed to: (g) select its unique code as a selected message to be transmitted in response to receiving a polling signal from central controller 102 (see Col. 8, lines 40 - 45 and Col. 10, lines 27 - 30), which is understood to be a triggering event; and (h) cooperate with the transceiver to transmit its unique code during a time slot selected by central controller 102 (see Col. 4, lines 43 - 45 and 54 - 57). Per Goldberg, response bit pattern 218, which is stored in RAM 214, comprises two sets of codes. The first set is a common code indicating which subset/group that each PCU 108 belongs to; the second set is a unique code identifying each PCU 108 within the group (see Col. 8, lines 27 - 32). Because Goldberg specifies that the unique codes for personal communication units (PCUs) 108 or wireless communication units are maximally different such that all received interference bit patterns or symbol patterns (see Figs. 6 and 7) can positively identify all responding PCUs, it is understood that the unique codes are orthogonal codes. Goldberg teaches that when a plurality of different orthogonal codes are received simultaneously, the resulting interference symbol pattern provides a non-zero probability of correctly identifying at least a portion of the group of PCUs and a substantially zero probability of erroneously identifying a PCU not in the group (see Col. 2, lines 1 - 5). Goldberg's central controller 102 or wireless processing device comprises: (a) transceivers formed by receivers 103, 105 and transmitter 104 for receiving a plurality of common and/or unique codes (see Fig. 1; Col. 4, lines 65 - 67; and Col. 5, lines 1 - 4); and (b) a processor 404 coupled to the transceivers via encoder/transmitter controller 414, communication interface 402, and radio links (see Fig. 4 and Col. 4, lines 1 - 12). Processor 404 of central controller 102 is programmed to: (c) cooperate with the transceivers to receive at least two different canned messages sent during a signal time slot (see Col. 6, lines 44 - 48; Col. 7, lines 8 - 11 and 56 - 61; and Col. 8, lines 46 - 58); (d) decode at least some of the at least two

different canned messages from the interference symbol pattern shown in Fig. 7 (see Col. 10, lines 51 - 54); (e) cooperate with the transceivers to receive at least two identical canned messages (i.e., common codes) during a single time slot, thereby producing a reinforced symbol pattern (see Col. 6, lines 44 - 48; Col. 8, lines 46 - 51; and Col. 10, lines 30 - 34); and (f) decode from the reinforced symbol pattern one of the plurality of canned messages received (see Figs. 6 and 7 and Col. 10, lines 30 - 34).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of Reis as taught by Goldberg because the use of the slotted ALOHA protocol and orthogonal codes enable a plurality of pagers to simultaneously transmit canned reply messages on the same communications channel while enabling a local cellular transceiver to correctly identify the interfering messages and confirm the receipt of identical canned messages, thus improving the system's reliability and efficiency.

Regarding Claim 14, Reis's microcomputer 112 is further programmed to: (a) produce a first generation of a canned message in response to a triggering event (see Col. 8, lines 13 - 15 and 27 - 30); and (b) prevent a second generating of the canned message for a predetermined time period after the first generation while waiting for a local cellular transceiver's acknowledgement signal (see Col. 6, lines 34 - 39; Col. 9, lines 50 - 58; and Col. 16, lines 3 - 5 and 13 - 16).

Regarding Claim 15, Reis teaches a collection protocol wherein communication signals are processed during a batch session, which includes a plurality of collection periods (see Col. 5, lines 27 - 29). A collection period comprises a listen period, wherein unidentified pagers transmit pager identifying signals to the interrogator only once, and an acknowledge period, wherein all pagers identified during the preceding listen period are individually acknowledged

and directed not to respond to subsequent collection periods by the interrogator (see Col. 5, lines 39 - 41 and 51 - 60).

Regarding Claim 18, in addition to extracting the canned message (see Col. 9, lines 62 - 67 and Col. 10, line 1), Reis imparts that computer 202 is able to determine the location of a user carrying pager 102 or if the user has authorization to enter a restricted zone (see Col. 10, lines 16 - 44), thus implying that computer 202 is able to extract additional information received with the received canned messages.

Regarding Claims 19 and 20, Reis's processor 102 of interrogator 7 is programmed to cooperate with RF modules 123 in order to: (a) receive canned messages from pagers 8 (see Col. 11, lines 25 - 30 and 52 - 58); (b) send a broadcast command ALL_SLEEP to all active pagers 8, causing pagers 8 to enter a sleep state and preventing the pagers from transmitting any data until interrogator 7 transmits a wake-up signal and a command signal requesting data (see Table 1; Col. 14, lines 16 - 21; and Col. 17, lines 11 - 16); (c) cooperate with RF modules 123 to send "directed commands", such as SLEEP and SQUAWK, to an addressed pager for execution (see Table 1 and Col. 17, lines 21 - 25), thereby allowing interrogator 7 to selectively control specific pagers 8. Because Reis teaches storing canned messages in a pager as explained above in Claim 1, it is understood that the SQUAWK command, which directs a specific pager to transfer data from a specific portion of the pager memory to interrogator 7 (see Col. 17, lines 21 - 25), selects a specific pager 8 to generate a canned message.

Regarding Claim 21, as shown in Fig. 4, interrogator 7 includes interface unit 110, which connects processor 102 over a network to other devices (see Col. 13, lines 1 - 7).

8. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,973,613 (Reis et al.) and U.S. Patent No. 5,530,437 (Goldberg) as applied to claim 11 above, and further in view of U.S. Patent No. 6,054,928 (Lemelson).

Reis, as modified by Goldberg, teaches that pager 102 is able to transmit canned messages (see Col. 7, lines 45 - 59 and Col. 8, lines 27 - 30). Reis imparts that pager 102 will retransmit a previously sent canned message if it fails to receive an acknowledge signal from a local transceiver (see Col. 9, lines 53 - 58), thus implying that microcomputer 112 must keep track of the time lapsed after transmission in order to determine that an acknowledgement signal has not been received. Consequently, microcomputer 112 is programmed to check the time lapsed after transmission of a canned message and to refrain from transmitting again (i.e., behave in a specified manner if the check is positive) if the time lapsed is less than the time period indicating that an acknowledgement signal has not been received. Reis and Goldberg also teach pagers 8, which are understood to be pagers 102 used in a batch collection protocol, receiving broadcast commands, such as HELLO or INTERRUPT_HELLO, and behaving in the manner specified by the command (see Table 1; Col. 16, lines 50 - 52; Col. 17, lines 6 - 9; and Col. 37, lines 23 - 40). Reis and Goldberg are silent on a processor that is programmed to generate time-stamped record each time a canned message is transmitted and to check the time-stamped record to determine whether the canned message was transmitted less than a predetermined time period.

In an analogous art, Lemelson teaches a processor that is programmed to: (a) save a time-stamped record in the memory whenever the processor transmits the selected message (see Col. 13, lines 45 - 49); (b) receive a broadcast message directing any of a plurality of prisoner sensor/processor units 52 to behave in a specified manner (see Col. 11, lines 6 - 12 and

Col. 13, lines 40 - 42); (c) check time T to determine whether or not it is greater than or equal to a preset value K (see Fig. 25, decision block 384 and Col. 25, lines 1 - 3); and (c) behave in a specified manner when the check is positive (see Col. 25, lines 3 - 29). Because Lemelson teaches that K is a time interval that must be met or exceeded before additional data or alarm messages can be sent to monitoring control center 42 and that clock 56 provides time stamps for recorded monitoring information (see Col. 11, lines 18 - 26), it is understood that T is determined by comparing the current time provided by clock 56 with the time stamp of the previously transmitted data.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the processor of Reis and Goldberg as taught by Lemelson because the use of a time-stamp to determine lapsed time is effective and provides a transmission record, thus enhancing a pager's functionality.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Clara Yang whose telephone number is (703) 305-4086. The examiner can normally be reached on 8:30 AM - 7:00 PM, Monday - Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Horabik can be reached on (703) 305-4704. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.

BRIAN ZIMMERMAN
PRIMARY EXAMINER

CY